

Notice of Allowability

Application No.

10/655,910

Examiner

Greg F. Cunningham

Applicant(s)

FRAZER ET AL.

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment received 8/18/2006.
2. ☒ The allowed claim(s) is/are 1-24.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

1. This action is responsive to amendment filed 8/18/2006.
2. The disposition of the claims is as follows: claims 1 - 24 are pending in the application. Claims 1 and 8 are independent claims. Claims 15 - 24 have been newly added.

Claim Rejections - 35 USC § 102 and 103

3. In view of amended and cancelled claims and review of cited references, 102 and 103 rejections are withdrawn.

Allowable Subject Matter

4. Claims 1 - 24 are allowed.
5. The following is an examiner's statement of reasons for allowance:

Applicant's amended independent claims 1 and 8 stand novel over the related prior art.

For instance, while the related art of Harrington (US Patent 5,581,376 A), Wakasugi (US Patent 6,157,937), Loewenthal et al. (US Patent 5,712,922 A), hereinafter Loewenthal, Inoue (US Patent 6,571,010), and Klassen et al., (US 2002/0067849 A1), hereinafter Klassen, appear to pertain to elements of the instant application as indicated in the applicant's remarks.

Wherein Inoue relates to a color conversion method and a color conversion apparatus in which a color conversion is performed. An efficient color conversion table is efficiently used and a given color conversion is performed over the entire color space by use of the output values at a plurality of vertices of a unit interpolation solid (no-cube) with continuity being ensured to thereby eliminate the necessity for a color conversion table other than the color conversion table for the input color space. The unit interpolation solid is a non-square solid (see Figs 2(A) to 2(C),

wherein the division of a unit solid in the preferred embodiment is shown). A signal line PNTSL is provided in a solid area determiner and solid interpolation calculator and the output of a color conversion table memory and the calculation used for an interpolation of a given solid and an interpolation of a divisional solid obtained by dividing the given solid such as a triangular prism interpolation and a tetrahedron interpolation are switched to those for any one of the interpolations.

According to the color conversion method of Inoue, for input color signals of, for example, lightness and chromaticity, or the three primary colors or the tristimulus values, an efficient color conversion table memory is used for a high-speed and high-precision color conversion and by use of the output values at a plurality of vertices of a unit interpolation solid a given color conversion is interpolated over the entire color space with continuity being ensured to thereby eliminate the necessity for a color conversion table other than the color conversion table for the input color space. Therefore, compared to the conventional methods, excellent cost performance is realized.

However, according to a color conversion method of Inoue, an input color space is divided into unit solids that is NON-cube lattice point data constituting the unit solids are stored in a three-dimensional color conversion table memory, and an interpolation calculation is performed by use of the color conversion table memory for performing a color conversion of a color image signal expressed by various color signals, wherein lattice point data used for a first interpolation method using a smaller amount of lattice point data for the color conversion is a

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subset of lattice point data used for a second interpolation method using a larger amount of lattice point data for the color conversion, and the first or the second interpolation method is selected to perform the color conversion.

As can be seen, in Inoue, the division of square solids into the triangular prisms and the tetrahedrons is shown in FIGS. 2(A) to 2(C). The unit solid shown in FIG 2(A) is divided into two triangular prisms based on the magnitudes of RL and BL as shown in FIG. 2(B). When RL is lower than BL, that is, the sign bit of RL-BL is negative, PRISM=I. When the sign bit of RL-BL is positive PRISM=0. The triangular prisms of PRISM=0 and PRISM=I are each divided into three tetrahedrons based on the magnitudes of GL and BL and the magnitudes of GL and RL as shown in FIG. 2(C). The correspondence between the sign bits of GL-BL and GL-RL and the applicable solids is as shown in TABLE 2.

Furthermore it should be noted that in Inoue, the cube was the starting point or state, the ending point or state is some non-cube solid such as triangular prisms, etc. It naturally follows that combining Inoue with Harrington, Wakasugi and Loewenthal still results in a non-cube solid as described in Inoue.

Now Klassen discloses a method of color transformation that is based on non-separable tiling of a color space. Non-separable tiling allows fine granularity where it is desired and coarse granularity where it is tolerated. Non-separable tiling of the color space provides improved transformation quality for a given lookup table size. Since Klassen is directed at the conservation of data space for the look up tables rather than increasing the throughput access of said tables. Therefore, Klassen actually teaches away from the instant invention, and therefore lack motivation to combine.

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Therefore as claimed by the combined elements of amended independent claims 1 and 8, the cited references and prior art of record lack separately and in combination the elements of amended claims. Claims 2-7, 15-20 and 9-14, 21-24 depend from allowable independent claims 1 and 8, respectively, and therefore are also allowed.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Responses

7. Responses to this action should be mailed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231. If applicant desires to fax a response, (703) 872-9306 may be used for formal communications.

Inquiries

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory F. Cunningham whose telephone number is (571) 272-7784.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

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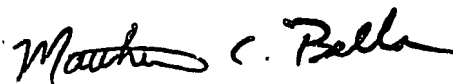
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Greg Cunningham

Examiner, Art Unit 2624

4/18/2007



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